

1 claims

2
3 1) A method of adapting an information carrying signal
4 that comprises a plurality of data pulses that
5 exhibit a range of pulsewidths and which are
6 generated by a transmitter for transmission through a
7 propagation medium, the method comprising the step of
8 introducing one or more sub-pulses to one or more of
9 the plurality of data pulses prior to the information
10 carrying signal entering the signal propagation
11 medium wherein a pulsewidth of each of the one or
12 more sub-pulses is less than a minimum pulsewidth of
13 the plurality of data pulses.
14

15 2) A method of adapting an information carrying signal
16 as claimed in Claim 1 wherein an amplitude of the one
17 or more sub-pulses is of an opposite sign to an
18 amplitude of an associated data pulse.
19

20 3) A method of adapting an information carrying signal
21 as claimed in Claim 1 or Claim 2 wherein the
22 introduction of one or more of the sub-pulses are
23 timed so that these sub-pulses are contained within
24 one or more of the plurality of data pulses to which
25 the sub-pulses are introduced.
26

27 4) A method of adapting an information carrying signal
28 as claimed in any of the preceding claims wherein the
29 introduction of one or more of the sub-pulses are
30 timed so that these sub-pulses coincide with one or
31 more edges of one or more of the plurality of data
32 pulses to which the sub-pulses are introduced.
33

1 5) A method of adapting an information carrying signal
2 as claimed in any of the preceding claims wherein the
3 one or more sub-pulses are introduced to one or more
4 of the plurality of data pulses when the data pulse
5 exhibits a pulsewidth above a first predetermined
6 pulsewidth of the plurality of data pulses so as to
7 provide a means for low frequency filtering the
8 information carrying signal.

9

10 6) A method of adapting an information carrying signal
11 as claimed in any of the preceding claims wherein the
12 one or more sub-pulses are introduced to one or more
13 of the plurality of data pulses when the data pulse
14 exhibits a pulsewidth below a second predetermined
15 pulsewidth of the plurality of data pulses so as to
16 provide a means for high frequency filtering the
17 information carrying signal.

18

19 7) A method of adapting an information carrying signal
20 as claimed in Claim 5 wherein the first predetermined
21 pulsewidths of the plurality of data pulses
22 corresponds to the minimum pulsewidth of the
23 plurality of data pulses so as to provide a means for
24 equalising the information carrying signal.

25

26 8) A method of adapting an information carrying signal
27 as claimed in any of the preceding claims wherein the
28 timing of introducing the one or more sub-pulses to
29 one or more of the plurality of data pulses is
30 variable.

31

32 9) A method of adapting an information carrying signal
33 as claimed in any of the preceding claims wherein the

1 number of sub-pulses introduced is directly dependent
2 upon the pulsewidth of the associated data pulse.

3

4 10) A method of adapting an information carrying signal
5 as claimed in any of the preceding claims wherein the
6 pulsewidth of the one or more sub-pulses are directly
7 dependent upon the pulsewidth of the associated data
8 pulse.

9

10 11) A method of adapting an information carrying signal
11 as claimed in any of Claim 4 to 10 wherein the
12 coinciding of the one or more sub-pulses with one or
13 more edges of one or more of the plurality of data
14 pulses acts to time shift a rising edge of an
15 associated data pulse.

16

17 12) A method of adapting an information carrying signal
18 as claimed in any of Claim 4 to 10 wherein the
19 coinciding of the one or more sub-pulses with one or
20 more edges of one or more of the plurality of data
21 pulses acts to time shift a falling edge of an
22 associated data pulse.

23

24 13) A method of adapting an information carrying signal
25 as claimed in Claim 11 wherein the time shifting of
26 the rising edge of an associated data pulse comprises
27 advancing in time the rising edge.

28

29 14) A method of adapting an information carrying signal
30 as claimed in Claim 12 wherein the time shifting of
31 the falling edge of an associated data pulse
32 comprises delaying in time the falling edge.

33

1 15) A method of adapting an information carrying signal
2 as claimed in any of Claims 11 or 14 wherein the time
3 shifting of the edge of the associated data pulse is
4 by a predetermined value.
5

6 16) A method of adapting an information carrying signal
7 as claimed in Claim 11 or 15 wherein the time
8 shifting of the edge of the associated data pulse is
9 directly dependent upon the pulsewidth of the
10 associated data pulse.
11

12 17) An electronic circuit suitable for adapting an
13 electronic input signal of a transmitter, the
14 electronic input signal comprising a plurality of
15 electrical data pulses, the electronic circuit
16 comprises an electronic input channel, a clock pulse
17 phase delay circuit, a signal processor and an
18 electronic output channel wherein the signal
19 processor analyses one or more of the plurality of
20 electrical data pulses supplied on the electronic
21 input channel and one or more clock pulse phase delay
22 signals provided by the clock pulse phase delay
23 circuit so as to introduce one or more electrical
24 sub-pulses to one or more of the plurality of
25 electrical data pulses so as to provide an adapted
26 electronic output signal on the electronic output
27 channel.
28

29 18) An electronic circuit as claimed in Claim 17 wherein
30 the introduction of one or more of the electrical
31 sub-pulses are timed so that these electrical sub-
32 pulses are contained within one or more of the
33 plurality of electrical data pulses to which the
34 electrical sub-pulses are introduced.

19) An electronic circuit as claimed in Claim 17 or Claim 18 wherein the introduction of one or more of the electrical sub-pulses are timed so that these electrical sub-pulses coincide with one or more edges of one or more of the plurality of electrical data pulses to which the electrical sub-pulses are introduced.

20) An electronic circuit as claimed in any of Claims 17 to 19 wherein the clock pulse phase delay circuit comprises means for supply a first clock pulse and one or more phase delayed clock pulses to the signal processor.

21) An electronic circuit as claimed in any of Claims 17 to 20 wherein the signal processor comprises first electronic means for producing an internal signal pulse when subsequent electrical data pulses exhibit substantially the same value.

22) An electronic circuit as claimed in any of Claims 17 to 21 wherein the signal processor further comprises a second electronic means for introducing an electronic sub-pulse to the electronic input signal when the internal signal pulse is detected by the second electronic means.

23) An electronic circuit as claimed in any of Claims 17 to 22 wherein the signal processor further comprises a third electronic means for altering the timing of the electrical subpulses so allowing the subpulses to coincide with a rising or falling edge of an electrical data pulse.

1

2 24) An electronic circuit as claimed in any of Claims 21
3 to 23 wherein the timing of the first electronic
4 means is controlled by the first clock pulse.

5

6 25) An electronic circuit as claimed in Claims 23 or 24
7 wherein the second and third electronic means are
8 controlled by the combination of the first clock
9 pulse and the one or more phase delayed clock pulses.